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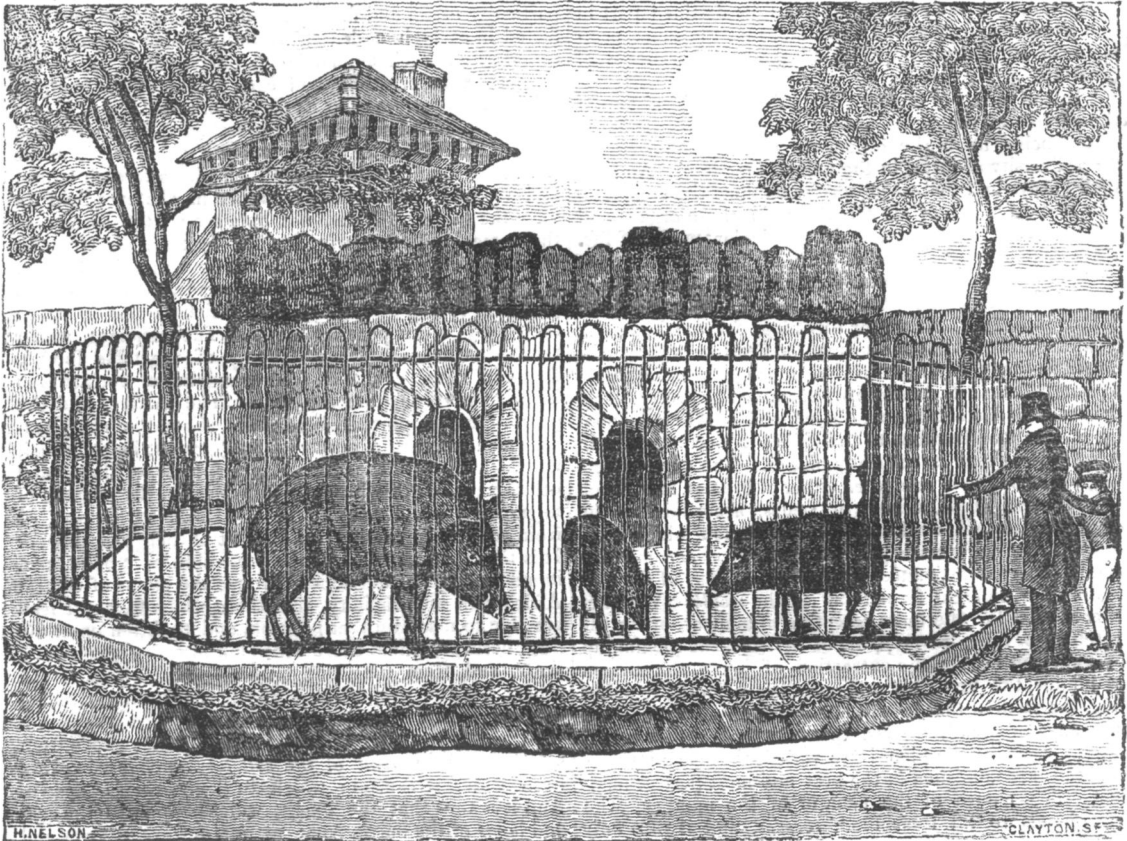
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THE WILD BOAR AND PECCARIES.

ZOOLOGY—THE ZOOLOGICAL GARDENS.

Feeling rather disinclined (from the effects of recent indisposition) to enter at the present moment into matters requiring antiquarian or other research, we propose during the remainder of the month to accompany our juvenile friends in a few occasional visits to the Gardens of the Zoological Society in the Phoenix Park. And here we may be allowed, passingly, to express a hope, that the inhabitants of our metropolis will be induced to afford a larger share of patronage to this interesting Institution than they have heretofore done. It has been the disgrace of our city, that its public scientific institutions and societies have not met with the encouragement and support which should have been afforded them; and consequently we are, as a people, much behind our English and Scotch neighbours in subjects of scientific pursuit. We trust, however, that the Zoological Society and Gardens may be an exception to the general rule, and that the citizens will feel it to be their interest and duty to support them liberally.

As it is always our wish to mingle instruction with amusement, we shall preface our description of some of the animals at present in the Gardens, by a few observations tending to show how interesting the study of zoology really is. Indeed, we know of few things more calculated to afford pleasure to a well-regulated mind, than thus tracing out the perfection and harmony of the works of creation, as evidenced in the various forms, modes, habits, and propensities of animated creation. In

this way the mind ascends by regular gradations "through nature up to nature's God;" and even the sceptic in other matters is here forced to admit that "He made all things well," and nothing in vain. In reference to this portion of our subject, we hope our young friends will not consider it as too dry or scientific for them. We can assure them, from experience that nothing will have a greater tendency to add to the pleasure of the examination of the different animals, than being able to comprehend how the variety observable in their structure and economy fits them to fill the various stations in which they are placed by nature; as well as to notice how animals which would at first sight appear to be of very different construction, have been formed upon nearly the same model. On this subject we shall, in preference to any observations of our own, subjoin the remarks of a highly scientific individual, by whom the Descriptive Catalogue of the Animals in the Gardens has been prepared.

"Had all animals," says he, "been alike in structure, and endowed with the same properties and propensities, they would all have required the same food, and should have been placed in the same circumstances; consequently, not only would a large portion of the globe, as unfitted for their support, have remained untenanted, and its productions unconsumed, but, as long as the failure of subsistence offered no check, their number would increase to an inconvenient extent. But, according to the wise provisions of nature, every situation has its appropriate animal, and there is a perfect conformity between

the instincts, organization, and instruments of each species, on the one hand, and the elements in which it is to live, the position which it holds, and its means of obtaining food, on the other. We shall find, too, that the varieties are so balanced as to ensure the existence of all. Every creature has its natural enemy, by which superabundance is prevented; or it is checked in its increase, either by a limited supply of food, by disease, or by the influence of seasons. The balance is thus continually preserved, and each being performs its destined part in one general system. We shall find that the same principle of adjustment pervades all the other branches of creation. \* \*

"In the variety of circumstances, then, which exist upon the surface of the globe, and in the mutual dependence of one being upon the other, we perceive the necessity for a diversity of forms in the animal kingdom. And we shall always find that each species exhibits the completeness or perfection of its structure, in those organs and properties which determine its particular mode of life. If we take a general view of that higher department of animated nature which embraces *man, beasts, and birds*, we shall find that the animal body, as an assemblage of contrivances, for eating, for digesting, for nutrition, for breathing, for moving, for seeing, for hearing, or for smelling, is, in its general principles, much the same in all. In each, life and its qualities are sustained by pretty nearly the same fundamental apparatus, which however is adapted by various modifications to the different circumstances in which the animal is naturally placed. The outer covering, for example, is composed either of bristles, hair, wool, fur, feathers, quills, spines, or scales, according to the degree of warmth, or the kind of protection, which is required. Again, we see perhaps a still nicer accommodation of these contrivances to the convenience of the animal, in the different formations of the *mouth*. Whether this is used for the mere reception of aliment, or for the catching of prey, the cropping of herbage, the picking up of seeds and insects, the extraction of juices, the suction of liquids, the breaking and grinding of food, together with the taste of that food, the respiration of air, and the utterance of sound, we see that the general principle is the same, whilst the plan is so varied, that each purpose is always accomplished in the best and most perfect manner. The mouth of the man, or of the monkey, who have hands to lift their food, *recedes*, and is thus only fitted for the *reception* of what is placed into it. The projecting jaws and sharp teeth of the dog enables it to *snatch and seize* the object of its pursuit. The full lips, the rough tongue, and broad teeth of the ox, or of the horse, qualify them for *browsing* upon an herbaceous pasture. The abrupt muzzle and long cutting teeth of the rat, or of the beaver, enable them to *gnaw* the hard substances on which they feed, or through which they cut, in the construction of their habitations. And, finally, the mouth of the whale is singularly fitted for the reception of food in its native element; the water, which flows in with the fish on which it feeds, being strained away, through the whalebone process at the sides, as the animal swims along with open gape, thus saving it the trouble of swallowing, until a sufficient quantity has accumulated. In birds the same organ assumes a new character; we have no longer the fleshy lips, and the teeth of enamelled bone; but, in place of these two parts, and to perform the office of both, we find a horny substance, suited by its shape and mechanical construction to equivalent actions. The hooked beak of the hawk separates the flesh from the bones of its prey with the utmost nicety. The sharp edge and tempered point of the sparrow's bill picks out almost every kind of seed from its concealment in the plant, hulls the grain, and by breaking and scattering the shell lays open the kernel. The comparatively soft and compressed bill of the pheasant is in strict accordance with the soft nature of its food. The long and tapering bill of the snipe penetrates the moist earth, where the food of this kind is lodged. And the spoon-shaped bill of the goose enables it to graze upon the pasture, to collect its food from the bottom of pools, or to sift it from amongst the soft and liquid substances with which it is mixed. Innumerable other examples might be cited, in

order to show the manner in which the animal structure is modified and fitted, in its several parts, to the combination of circumstances in which each species is placed. But enough has been said to point out the inferences which may be drawn from the animal kingdom, viewed in this light, and to suggest, that the perfection of the creation does not consist solely in the production of one being who should have dominion over the rest, but also in forming and distributing a vast number, in each of which some particular organ and faculty should be developed and perfected in as high a degree as those which give man his superiority; each animal being thus perfect, as to the purpose of its creation, and each of its organs being in like manner perfect as to its particular office.

"These and similar truths, ascertained from a general view of nature, evince design upon a grand scale in the perfect adaptation of its several kingdoms to each other; and we can draw the same inference in whatever light we view the subject. Thus, not only are all the species of the same kind peculiarly adapted by their structure to their respective stations, whether it be mountain or plain, trees, marsh, or water, but each individual species is placed in that particular climate which is best suited to the supply of its peculiar wants. The elephant, which requires such an enormous supply of vegetable food, is found in those countries where vegetation continues in luxuriance throughout the year. The monkey and the parrot are also placed where fruits abound in every season; and where the supply of food cannot be continual, nature has provided some with swiftness of foot, and others with fins, or with powerful wings, for the purpose of migrating from district to district, from sea to sea, or from country to country, in pursuit of their proper food. It is thus that, impelled by the irresistible force of instinct, immense herds of antelopes traverse the plains of central Africa with such rapidity, that those which take the lead are able to maintain that position, and to fatten upon the fresh herbage, whilst those which fall into the rear remain there, and, from subsisting only on the leavings of the others, become proportionably lean, until the marching column returns, and the order of precedence is reversed. It is thus, too, that vast troops of porpoises move from sea to sea, in pursuit of the salmon which are seeking fresh water streams in which to deposit their spawn. And it is thus that the ducks, which belong to the seas and lakes of the north, come to our unfrozen shores and marshes in the winter, whilst so many of our summer birds, like the swallow and the cuckoo, upon the approach of the cold season, fly southwards to warmer climates, where insects are always to be found. All nature, indeed, teems with the most instructive and interesting facts connected with the migrations and geographical distribution of animals, which require only to be known to be admired.

"There are, however, other distinctions which pervade the animal kingdom, and other relations by which, at the same time, its various parts are connected together into one uniform whole. It is by tracing these distinctions and these relations that we may expect to discover the plan or *original design* of the creation, which, according to Linnæus, is the ultimate object of our labours in natural history. For, scattered as animated beings are over every quarter of the globe, pursuing their respective destinies under such a vast variety of forms and propensities, we have every reason to believe that in the eye of nature they all correspond with each other like the different parts of a dissected map. To bring these together, and to reconcile them to each other, has long been the aim of Zoologists; and we shall now endeavour to point out the steps by which it appears to us that the nearest approach has been made to the exposition of the natural system, in the two great classes of *Mammalia* and *Birds*.

"The animal body, as an assemblage of mechanical and chemical contrivance for the support and continuance of life, under a variety of different circumstances, is, in many respects, the same in the higher classes. They all possess an internal skeleton, composed of a like bony texture, with corresponding organs of respiration, and a similar arrangement of nerves; to which we may add, that they resemble each other in the nature of their food, as well as in the mode in which this is digested, and the fluids ex-

tracted from it circulated through the whole. Were we to exclude from our consideration some of these particulars, we could further generalize the system until it embraced *all* animated nature. But, on the other hand, if we take more particular features into account, it will appear that in the moulding and accommodation of these to various conditions of existence, several distinct plans have been pursued. *Fishes, Reptiles, Birds*, and the *Mammalia*, are obviously constructed upon four different models, which are peculiarly designed for living in the water, for creeping upon the ground, for flying in the air, and so on. The two last of these natural classes are all that come within the scope of our present purpose, and we can repeat the same mode of analysis in either of them. Thus the *mammalia*, which are so called because they alone *suckle* their young, have a greater number of peculiarities in common than the animals of a more general division. They appear to be all formed upon the model of *human* structure; and it is an interesting fact, that in all the deviations in the mechanism of the skeleton from this model, the same bones are, by slight and almost imperceptible changes, adjusted to various purposes. For example, we recognise those which form the human fingers, in the foot of the horse, in the fins of the whale, in the paw of the bear, and in the delicate supporters of the bat's membranous wing. The *internal* mechanism is pretty much the same in all, whilst from the concealment, or imperfect development of some parts, the limb assumes those several varieties of external form. Again, the horny extremities of these parts become curved and sharp claws in the lion, flattened nails supporting the delicate organ of touch in man, and rounded hoofs in the horse. And an examination of all the other parts of the structure, carried on in a like spirit, would discover to us a unity of design, which argues the intervention of but one author; whilst the moulding of the same general system into a variety of suitable shapes evinces his operations far more clearly than a creation of animals upon a thousand different and unconnected plans.

"Independent of the acknowledged superiority of the class *mammalia* over the others, a peculiar degree of interest has been attached to it, as being that to which *man* belongs. If we look upon him merely as an intellectual creature, he appears indeed to be placed at an immeasurable distance above his fellows; but we must remember that his superiority is only in his *mind*, and in the organs intended for the execution of his will, and that he is thus connected with a *moral* end, which seems in this respect to unite him with a higher order of beings. In regard, however; to his structure, he is but one of a numerous class of animals which possess much of their general mechanism in common, and therefore approach him by various degrees of resemblance which in some, as in the apes, amounts to all but identity of form; and in whatever direction we extend our comparison, through the inferior animals, we shall arrive at this important conclusion, that whilst those which indicate most intelligence, are yet so far removed from him, that we can hardly consider them as in this respect connected with him at all, in proportion as their intelligence, powers, or external relations are extensive, their physical structure approaches his. But we must carefully distinguish the actions referable to the blind impulse of *instinct*, from those which are the expressions of *intelligence*. The bee and the ant, the sociable grosbeak and the beaver, are impelled by a motive, equally inexplicable as the reasoning faculty, but avowedly distinct from it. They have no deliberate choice in the pursuit of particular ends, or in the combination of means to attain them, being under the more immediate guidance of nature, whilst the rational animal is left to the exercise of a *discretion*. It is far away, too, from man's place in the chain of existence, that we find this mysterious principle in its greatest activity, working with uniformity and unerring certainty, whilst, as we approach towards him, its impulses are more equivocal, and we discover some slight dawn both of the reasoning powers and of the moral affections. Every one will acknowledge the partial existence of the former who has observed the crow avoid the gun, the horse lift the stable latch, the sagacious dog take a short cut in his way home, or the little American monkey, when unable to break the shell of a nut,

returning it to the giver in a manner expressive of a desire to have it opened, waiting with patience until it is broken, and then evincing the utmost anxiety to regain it. And we perceive similar indications of the moral affections in the same class of animals, 'the angry look of a dog, for instance, bespeaking the internal feelings as strongly as that of the man; and the playful and rapid movements of the young puppy, resembling the careless hilarity of childhood, no less than the stayed motions and the wary eye of the aged hound resemble the sedateness of the aged human being.' To which we may add, the evident joy which the same animal expresses at the sight of his master, and the attachment which different animals contract for each other.

"From the preceding observations it will be seen, that there is a much greater uniformity in the works of nature than some might at first have supposed, and that it prevails as well in the intellectual as in the physical properties of animals. It is by a perception of its existence in the latter instance, that we are led to a knowledge of the simplicity and order which belongs to the class under consideration. For as in the mineral kingdom, analysis has shown that the simple or elementary substances are few in number, though combined and moulded into such a vast variety of forms, so we learn that the constituent parts of these animals are few, whilst, by the increased development of some, and the attendant inferior development or obliteration of others, they are made to assume all those varied forms which fill and adorn creation.

"It is on account of this general sameness of structure, that, in our classification of animals, we associate with *man* such apparently different beings, as the *horse*, the *beaver*, the *whale*, and the *leopard*. And it will be found, that whilst all the animals of this class resemble the human form in their more general structure, they are, in respect to their characteristic features, in a greater or less degree assimilated to one or other of these *typical* species; which are so called, because the particular deviations from the common model, observable in the various tribes of *mammalia*, reach the utmost limit in those animals. They are in fact so many standards, round which are collected all those species which have a stronger resemblance to it and to each other than to any thing else; or rather, whilst the *whole* class of *mammalia* is formed, as it were, by deviations from the human structure, all the species which enter into any one of these assemblages or groups may be regarded as further deviations from one of those types. They are all distinct, because every one departs from the common type in a different degree from each of the others, and they are connected, because a sufficient degree of resemblance is retained to be their bond of union. We shall thus find, that the animals of the class *mammalia* are distributed into five natural groups, each of which has its own character, resulting from a peculiar modification of the general structure. Thus the *beasts of prey*, distinguished by a structure suited to a life of rapine; the *quadrumanous animals*, which have the form of a hand on each of their four limbs, with the habits resulting from this conformation; the *hoofed animals*; the *rodent animals*, whose character is derived from their faculty of gnawing with their long front teeth; and lastly, the *cetacea*, or *whale kind*, formed for living in the sea, constitute so many well-defined groups, which, amongst them, take in every known animal of this class. The manner in which their several characters are formed will be seen, if we watch the gradual variation of form throughout the whole class. It will be found that some parts of the common structure reach their fullest development in the associated animals of one group, and other parts in those of the succeeding one: thus, for example, the sharpness of the teeth and wide gape of the mouth are most developed in the *beasts of prey*; the fingers in the *quadrumanous animals*; the horny growth of the *toes* in the *hoofed animals*; the front teeth and hinder legs in the *rodent animals*; and the organs necessary for swimming in the *cetacea*. By an application of these principles upon a smaller scale, we can divide each of those five primary groups, which have been called *orders*, into five lesser groups, which have been called *families*. The species, which constitute any one family, not only have a positive resemblance in the majority of their

features, but agree with each other more than with those of the remaining families belonging to the same order. They may therefore be regarded as slight deviations from the typical form which heads their family. Thus the *order of beasts of prey* is divided into five *families*, composed of species resembling, in a greater or less degree, either the *dog*, the *cat*, the *bat*, the *weasel*, or the *bear*, which would appear to be the several different models upon which the predatory character was formed. There may, indeed, be other animals which embody the extreme condition of the family to which they belong more fully than these, and which might perhaps afford a better type and denominator for each; but then this cannot interfere with the principles of our grouping, which belong to a system of *relations*; and obviously the general features or relative position of each family will be as little affected by the exchange of its name, for one more expressive of its character, as by an increase of its numbers. We may therefore provisionally associate our animals with what type we please. The remaining orders admit of a like division; and the whole *class of mammalia* then may be divided into five great *natural orders*, and each of these into five *natural families*, which, for convenience, have been further subdivided into genera and species.

"A system like this, the characters of which are impressed upon the several parts of the animal kingdom by the hand of nature, possesses several important advantages over one which is purely artificial, and not modelled upon the outlines of creation. Its symmetry delights the imagination, and therefore takes a firmer hold of the memory, which is the main purpose of all classifications; but in addition to this, its successive branches are so obvious, and so continually suggested to us by familiar circumstances, that, by means of a more and more attentive observance of the features of an animal, we can refer it from a more general to a more particular division, until we arrive at its proper place, amongst its natural associates. It sets before us, too, that beautiful balancing, which is so necessary to preserve the existence and proportional numbers of all, that an error in the grouping would have caused destruction to the whole; and above all, it at once leads to the discovery of many important facts connected with the properties of individual species, and the mutual relations of the several groups.

"It is by means of these relations that all the animals of each family, and all the families of the whole class, are successively united together into one uniform system."

#### THE WILD BOAR.\*

This species is found in all parts of the globe, except in New Holland, and is the original of all our domesticated varieties of the hog. In the wild state, the boar has long been the object of a chase, as celebrated as it is dangerous, his great strength and powerful tusks rendering him truly formidable to both hunters and dogs, the latter of which he tears and tramples upon with the most terrible ferocity.

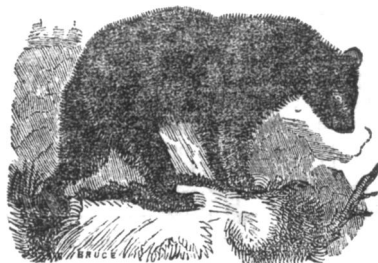
When the wild boar is come to a state of maturity, and when conscious of his own superior strength, he walks the forest alone and fearless. At that time he dreads no single creature, nor does he turn out of his way even for man himself. He does not seek danger, and he does not much seem to avoid it. This animal is therefore seldom attacked but at a disadvantage, either by numbers, or when found sleeping by moonlight. The hunting of the wild boar is one of the principal amusements of the nobility in those countries where it is found. The dogs provided for this sport are of the slow heavy kind; nor are the hunters much mindful of the goodness of their nose, as the wild boar leaves so strong a scent, that it is impossible for them to mistake its course. They never hunt any but the largest and the oldest, which are known by their tracks. When the boar is *reared*, as is the expression for driving him from his covert, he goes slowly and uniformly forward, not much afraid, nor very far before his pursuers. At the end of every half mile, or thereabouts, he turns round, stops till the hounds come up, and offers to attack them. These, on the other hand, knowing their danger, keep off, and bay him at a distance. After they have for a while

gazed upon each other with mutual animosity, the boar again slowly goes on his course, and the dogs renew their pursuit. In this manner the chase is sustained, and the chase is continued till the boar is quite tired, and refuses to go any farther. The dogs then attempt to close in upon him from behind; those which are young, fierce, and unaccustomed to the chase, are generally the foremost, and often lose their lives by their ardour. Those which are older and better trained are content to wait until the hunters come up, who strike at him with their spears, and, after several blows, dispatch or disable him.

In Europe it inhabits dense forests, where it feeds upon vegetables and fallen fruits, and from whence it commits great devastation amongst the crops of the adjoining fields. The old boar usually lives alone, but the females unite together, and with the young form very numerous troops for mutual defence. Their foot, which is formed by two of the bones which represent the human fingers, being placed intermediate between two others of a smaller size, which take a backward direction, and are placed so much above the level of the foot as seldom to touch the ground in walking, furnishes an example of a wise provision of nature for preventing the animal from sinking deep in the soft situations which it frequents.

#### THE COLLARED PECCARY.\*

The peccaries occupy the same place in South America that the pigs do in the old world; from which well-known animals they are distinguished by the number and direction of their teeth, by the shortness of their tails, and by the large gland placed immediately beneath the skin of the loins, which emits the most offensive smell. Their flesh, too, is far inferior to pork, and, unlike the sow, the female brings forth but once in the year, and produces no more than two young at a time. But in their general habits and propensities they resemble the common hog, burrowing in the earth after the same fashion, eating the same kind of food, and expressing their feelings with the same peculiar grunt.



THE BLACK BEAR.

Although naturalists were long in a state of uncertainty with respect to the propriety of separating the black bear of America from the common species, it is obvious that their doubts could only have arisen from the want of sufficient materials for comparison. Whoever has seen the two animals together will at once admit that they belong to species perfectly distinct, so greatly do they differ from each other in figure, in fur, in colour, and even in their gait, attitudes, and manners. The head of the American is narrower, with much more of the physiognomy of the dog; the distance between the ears is proportionally greater; the forehead is more regularly convex, but not quite so much elevated, the line of the profile being continued without any depression above the eyes, and the muzzle is more prominent and pointed. The general proportions of the body and limbs are also smaller; and the whole are covered with soft smooth straight hairs of a deep glossy black throughout the greater part of their length, having none of the shagginess or woolliness which characterizes the fur of the brown bear, and without any intermixture of the lighter-coloured hairs by which the coat of the latter is always more or less grizzled. The muzzle alone is covered with short close-set hairs of a deep brown above, and somewhat lighter on the sides. The tail is more distinctly visible in consequence of the

\* See engraving in first page.

\* See engraving in first page.